

REMARKS

Further and favorable reconsideration is respectfully requested in view of the forgoing amendments and following remarks.

Initially, as required by the Examiner, Applicants hereby affirm their election of the Group I claims, i.e. claims 16, 19, 21, 23, 26, 28, 30, 32-33, 36, 38, 40, 42, 44-46, 48, 50, 52 and 54. Applicants emphasize that this election is made while reserving their rights under 35 U.S.C. § 121 to file a divisional application for the non-elected subject matter.

In response to the objection to the drawings, please see the Request for Approval of Drawing Changes submitted concurrently herewith.

Claims 23 and 26 have been amended in response to the rejection of these claims under the second paragraph of 35 U.S.C. § 112 as a result of which this rejection has been rendered moot.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attachment is captioned "Version with markings to show changes made."

The patentability of the present invention over the disclosures of the references relied upon by the Examiner in rejecting the claims will be apparent upon consideration of the following remarks.

The rejection of claims 16, 19, 23, 26, 28, 30 and 32 under 35 U.S.C. § 103(a) as being unpatentable over Handa is respectfully traversed.

The effective date of this reference as prior art is its U.S. filing date of November 27, 1998, which is subsequent to Applicants' Japanese priority date of July 6, 1998. Therefore, Applicants can overcome the use of this reference by obtaining this priority date.

The Examiner has acknowledged receipt of a copy of the certified copy of the priority document. A verified English translation of the priority document is submitted herewith.

In view of this, Applicants submit that the rejection based on Handa should be withdrawn.

Similarly, the rejection of claims 21, 33, 36, 38, 40, 42, 44 and 45 under 35 U.S.C. § 103(a) as being unpatentable over Handa in view of Yukinobu et al. should be withdrawn, since the Handa reference is not available as prior art.

The rejection of claims 16, 19, 21, 23, 26, 28, 30 and 32 under 35 U.S.C. § 103(a) as being unpatentable over Iida et al. is respectfully traversed.

The feature of the present invention is that the transparent conductive film has, in its surface shape, an arithmetic mean roughness (R_a) within a range of $0.4 \text{ nm} \leq R_a \leq 4.0 \text{ nm}$ and a root-mean-square roughness (R_{rms}) within a range of $0.6 \text{ nm} \leq R_{rms} \leq 3.0 \text{ nm}$, in order to perform stable, light touch inputs in an input operation of a transparent touch panel.

Iida et al. fails to teach or suggest such a feature, especially, an arithmetic mean roughness (R_a) and a root-mean-square roughness (R_{rms}) because the object of this reference is to have a higher short-circuit current density, contributing to an increase in the photoelectric conversion efficiency in an amorphous silicon solar battery, higher than that achieved by the conventional batteries of this type, over a wider range of the wavelength of the solar light (column 2, lines 13-20).

According to the present invention, since the arithmetic mean roughness (R_a) is within a range of $0.4 \text{ nm} \leq R_a \leq 4.0 \text{ nm}$ and the root-mean-square roughness (R_{rms}) is within a range of $0.6 \text{ nm} \leq R_{rms} \leq 3.0 \text{ nm}$, stable and light touch inputs can be performed in an input operation of a transparent touch panel. This "light touch inputs" means that an input state can be held for a slight-load input (see page 4, lines 1-3 of the present specification), that is, an input coordinate is detected with a higher resolution even though continuous linear input operation with light writing-pressure, such as signing one's own name is performed when an input operation is performed using a pen-shaped writing implement (stylus). In the present invention, such light touch inputs can be surely performed, but Iida et al. can not perform such light touch inputs.

In addition, although Iida et al. discloses that

...a first transparent conductive film is formed such that its surface roughness as measured by average grain diameters in the range of 0.1-0.9 micron (column 10, lines 21-24)

there is no cause and effect relation that if the average grain diameter is within the specified range, then the arithmetic mean roughness (R_a) and root-mean-square roughness (R_{rms}) should be respectively within specified ranges.

For these reasons, Applicants take the position that the presently claimed invention is patentable over the Iida et al. reference.

The rejection of claims 16, 19, 21, 23, 26, 28, 30, 32-33, 36, 38, 40, 42, 44-46, 52 and 54 under 35 U.S.C. § 103(a) as being unpatentable over Yukinobu et al. in view of Masaki et al. is respectfully traversed.

Yukinobu et al. (USP 5,411,792) discloses a transparent conductive film for a transparent touch panel having as its constituent element, ultrafine powders, which is greatly different from the present invention where such ultrafine powders are not included. In Yukinobu et al. the diameters of the ultrafine powders are disclosed, but this does not suggest that the arithmetic mean roughness (Ra) is within a range of $0.4 \text{ nm} \leq Ra \leq 4.0 \text{ nm}$ and the root-mean-square roughness (Rms) is within a range of $0.6 \text{ nm} \leq Rms \leq 3.0 \text{ nm}$, which are features of the present invention, because there is no cause and effect relation that when such diameters of the ultrafine powders are within a specified range, the arithmetic mean roughness (Ra) and root-mean-square roughness (Rms) should be respectively within specified ranges.

In addition, Yukinobu et al. fails to teach or suggest such light touch inputs described above. Please note that the specific resistance of the transparent conductive film is $6 \times 10^{-3} \Omega \cdot \text{cm}$ to $5 \times 10^{-2} \Omega \cdot \text{cm}$ in Yukinobu et al. (claim 1), although it is unstable for the specific resistance of the transparent conductive film to be $1.0 \times 10^{-3} \Omega \cdot \text{cm}$ or more (see page 29, lines 10-12 of the present specification), and thus it is clear that in Yukinobu et al. light touch inputs are not taken into consideration. Additionally, as described on page 3, lines 8-9 of the present specification, the surface resistance value is required to be 200 - 2000 Ω/sq , but in Yukinobu et al., the surface resistance is 200 Ω/sq or lower (claim 2). This further establishes that in Yukinobu et al. light touch inputs are not taken into consideration.

The Examiner applies the Masaki et al. reference for its disclosure of an apparatus which may be used to produce thin films.

However, even if Masaki et al. were combined with Yukinobu et al., the result of such combination would still not suggest the present invention in view of the failure of Yukinobu et al. to teach the features of the present invention as discussed above.

The rejection of claims 16, 19, 21, 23, 26, 28, 30, 32-33, 36, 38, 40, 42, 44-46, 52 and 54 under 35 U.S.C. § 103(a) as being unpatentable over Yukinobu in view of Hashimura is respectfully traversed.

The comments set forth above concerning the Yukinobu et al. reference are considered to be equally applicable to this rejection.

The Hashimura reference is applied by the Examiner in the same manner as the Masaki et al. reference, for its disclosure of an apparatus which can be used to produce thin films.

Therefore, even if Hashimura is combined with Yukinobu et al., the result of such combination would still not suggest the present invention, in view of the failure of Yukinobu et al. to teach the features of the present invention as discussed above.

Accordingly, in view of the forgoing amendments and remarks, it is submitted that each of the grounds of objection and rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

Ryoumei OMOTE et al.

By:



Michael R. Davis
Registration No. 25,134
Attorney for Applicants

MRD/lgs
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
March 4, 2003



Version with Markings to Show Changes Made

23. (Amended) A transparent conductive film for use in a transparent touch panel according to Claim 16, wherein given a center line depth Rp and a maximum roughness Rmax with respect to the surface shape, a parameter Rp/Rmax [(Rp/Rmax)] representing the surface shape is set to 0.55 or less, whereby a cross section of grain aggregates forming the surface shape is formed into a trapezoidal or rectangular shape.
26. (Amended) A transparent conductive film for use in a transparent touch panel according to Claim 19, wherein given a center line depth Rp and a maximum roughness Rmax with respect to the surface shape, a parameter Rp/Rmax [(Rp/Rmax)] representing the surface shape is set to 0.55 or less, whereby a cross section of grain aggregates forming the surface shape is formed into a trapezoidal or rectangular shape.